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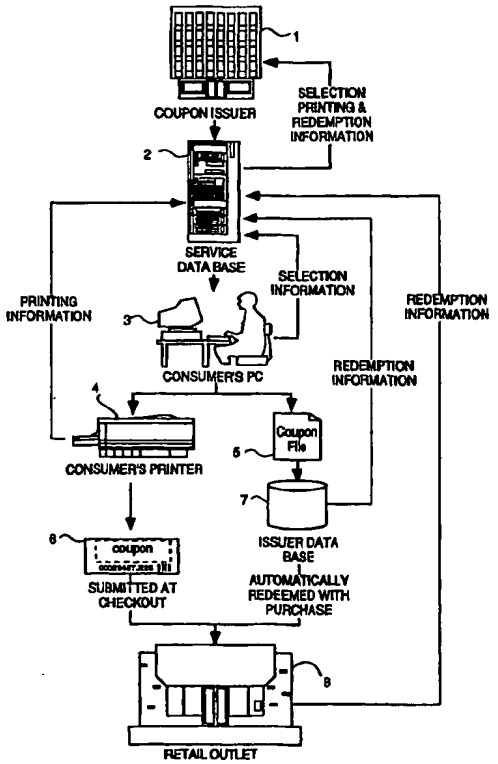
(54) Title: INTERACTIVE MARKETING NETWORK AND PROCESS USING ELECTRONIC CERTIFICATES

(57) Abstract

A data processing system issuing ECs through "online" networks of personal computers, televisions, or other devices with video monitors or telephones. Each electronic certificate includes transaction data and identification data, and can be printed out on a printing device linked to a consumer's personal input device, or electronically stored in a designated data base until a specified expiration date. The certificate can be used for various purposes, including use as a coupon for a discounted price on a product or service, proof of a gift or award, proof of reservation, or proof of payment. Consumers access the date processing system online, browse among their choices, and make their selections. The data processing system provides reports on the selected certificates and their use following selection. Certificate issuers also have online access to the data processing system and can create or revise offers, and provide various instructions pertaining to the certificates, including limitations as to the number of certificates to be issued in total and to each individual consumer.



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INTERACTIVE MARKETING NETWORK AND PROCESS USING ELECTRONIC CERTIFICATES

Related Applications

This application is a PCT application which claims priority from U.S. Serial No. 09/073,334, filed May 6, 1998, which is a Continuation-In-Part of United States patent application Serial No. 08/507,693 filed July 25, 1995, now United States Patent No. 5,761,648.

Background of the Invention

The present invention generally relates to the use of an interactive marketing network. More specifically, the present invention relates to the interactive use by service providers and consumers of electronic certificates over online networks.

Increasingly, consumers are gaining direct access to data bases for information and entertainment, whether through phone lines and coaxial cable or by wireless connections from cell systems and satellites. With this so-called "online" access, consumers can use data bases for a range of activities at virtually any time. Besides granting freedom to the consumer, online access gives added efficiencies to companies merchandising products and services, whether those products are sold directly to the consumer by mail or in a store.

At the same time, various types of transactions are currently consummated using certificates such as coupons, tickets, etc. These certificates typically contain data (referred to as "transaction data") describing the particular transaction (e.g., in the case of a coupon, the transaction data would include a product description, the coupon amount, and the expiration date). These certificates also typically contain data (referred to as "identification data") such as various numbers, letters, barcodes or other symbols sufficient to uniquely identify each certificate. The need arises for creation of an online "electronic certificate" that can be used for promotional or transactional purposes, much as coupons have been used in such traditional marketing vehicles as newspapers and mail packs. Beyond offering a discount as an incentive to buy a featured product, the coupon is also currency, printed in quantities limited by the issuer and often carrying unique serial numbers, expiration dates and "source codes" which indicate the means by which it was distributed (e.g. newspaper, mail list, in-store dispenser, etc.), so issuers can track the effectiveness of each marketing medium.

Known coupon dispensing systems fail to interactively communicate between a service center and a third party, as pointed out in U.S. Patent No. 5,303,197 to Axler. While the Axler patent permits an operator to periodically "visit" a dispensing machine, this does not allow "real time" interactivity (e.g., it does not permit the operator to access and analyze demographical data contemporaneous with its input). Nor does Axler (or any other known prior art systems) envision the creation of an online "electronic certificate," as will be described below.

Accordingly, it is an object of the present invention to provide a method and system, which can successfully emulate the attributes of a coupon over an online network so that an "electronic coupon" or "EC" is created. Such a system would allow EC issuers to interactively communicate and transact with remote users/consumers.

Another object of the present invention is to reduce the expense associated with the creation of a data base of consumer/user information as is incurred with conventional targeted mail systems, by providing a system in which issuer

systems share a user data base, while also sharing the cost of creating that data base.

The present invention further enables the issuer to efficiently act on the information provided by the data base. As a result, for example, issuers can target 25%-off ECs exclusively to those who have not previously responded to 20%-off ECs.

Summary of the Invention

These and other objects are accomplished by the present invention, which overcomes the disadvantages of conventional marketing network systems, while providing new unique advantages to a marketing network system.

The present invention provides a data processing system and method which permits consumers to remotely access a data base online and obtain and/or use electronic certificates or "ECs". Direct access to consumers is provided, so that the ECs of the present invention exceed the capabilities of traditional coupons, thus giving EC issuers a greater degree of control in targeting the offer, restricting its use and tracking both the selection and redemption process. The controls of the data processing system of the present invention also make it possible

for service providers, such as restaurants and hotels, to use an online ECs as a promotional means.

In one preferred embodiment, the data processing system of the present invention identifies and marks each EC with a number (which can be represented in a barcode) distinguishing it from all other certificates. Coupon issuers can go online to create the ECs and to specify controls that restrict the total number of certificates issued as well as the number to be issued to each individual.

The data processing system of the present invention also preferably issues reports as soon as the consumers choose an EC from the data base and have it downloaded to their resident storage systems, such as remote computer terminals. Reports can be generated that show whether the consumer had the certificate printed with the consumer's printer or had it sent, as a computer record, back to the service data base. All of these reports can assist the issuer in research, security, and confirmation of a purchase or reservation.

In another preferred embodiment, the data processing system of the present invention can issue ECs created by an operator, and permits the storing and retrieval of data

pertaining to the EC entered by users of a communicating first set of remote computer terminals. This embodiment includes a service system including a first computer processor for processing data and a first computer storage system for storing data on a storage medium. Also included is an issuer system including a second computer processor for processing data and a second computer storage system for storing data on a storage medium. The issuer system permits the operator to provide the service system with instructions for issuing a predetermined type and number of the ECs. The service system is in selective electrical communication with both the issuer system and each of the remote computer terminals. Preselected identification data stored within either the first or the second computer storage systems and useable by either the first or the second computer processors is used to provide the first computer processor with appropriate instructions for associating each of the issued ECs with one or more identifying symbols. Users of the remote computer terminals are then permitted to controllably access the ECs.

A process for providing an interactive marketing system capable of using ECs that can be accessed online by remote

computer terminals linked within a computer network also forms part of the present invention. In this embodiment, an online network is provided including an issuing site having a first computer processor and a first computer storage system, and a service site having a second computer processor and a second computer storage system. The issuing site and the service site are in electrical communication, and the service site and each of the remote computer terminals are also in electrical communication. Instructions for issuing a predetermined number of ECs are transmitted from the issuing site to the service site, with each of the certificates including transaction data. The service site, upon receiving these instructions, revises the ECs by providing the issued ECs with unique identification data. The revised ECs can then be accessed by users of the remote computer terminals. Consumer data entered by the remote computer terminal users can be provided to the service site, and then selectively transmitted to the issuing site. Each of these steps can be selectively repeated, as required.

In a further preferred embodiment of the present invention, a process for selectively storing, retrieving and transmitting reservation data is provided. A computer operating

system is provided, including an issuing site with an issuing computer having an initial set of reservation instructions, and a service site with a service computer also having the initial set of reservation instructions. The issuing and service computers of the computer operating system are in electrical communication. Next, updated reservation data is transmitted from remote computer terminals electronically linked to the service computer. The updated reservation data is used by the service computer to revise the initial set of reservation instructions, resulting in a revised set of reservation instructions contained within the service computer. Now, data pertaining to the revised set of reservation instructions is transmitted from the service computer to the issuing computer. The data pertaining to the reservation instructions can be contained within the service computer in the form of an electronic reservation coupon, which can be printed by the remote computer terminal users. Again, these steps can be selectively repeated, as required.

In its broadest embodiment, the system of the present invention is used to create an EC. This system includes a computer system that can process and store data. The computer

system is capable of creating a plurality of ECs. The ECs contain at least unique identification data, and may also contain transaction date, which can be accessed by remote users linked to the computer system.

Brief Description of the Drawings

The novel features which are characteristic of the present invention are set forth in the appended claims. However, the invention's preferred embodiments, together with further objects and attendant advantages, will be best understood by reference to the following detailed description taken in connection with the accompanying drawings in which:

FIGURE 1 depicts the flow of information in one preferred embodiment of the present invention, which is a system for delivering online coupons to consumers;

FIGURE 2 is a flowchart of a software routine for a coupon issuer according to an embodiment of the present invention;

FIGURE 3 is a flowchart of a software routine for the online coupon service provider according to this embodiment;

FIGURE 4 is a flowchart of a software routine for the consumer using the coupon service according to this embodiment;

FIGURE 5 depicts the flow of information in an alternative embodiment of the present invention, which provides restaurant reservations;

FIGURE 6 is a flowchart of a software routine for the embodiment of FIGURE 5;

FIGURE 7 is a flowchart of a software routine for the reservation service provider according to this embodiment;

FIGURE 8 is a flowchart of a software routine for the consumer using the reservation service; and

FIGURE 9 is a schematic view showing the "triangular" electronic communication scheme for using ECs of the present invention.

Detailed Description of Preferred Embodiments

The present invention will shortly be described by reference to specific embodiments. However, in its broadest form, the invention is most advantageously implemented using a "triangular" scheme (FIGURE 9) in which a number of issuers (e.g., retailers) maintain selective or continuous electronic communication with a service system, while a number of remote users (e.g., consumers using personal computers) can selectively access the service system "online" in real time either by using a direct telephonic hook-up or via the Internet or other communication media.

In a preferred embodiment, issuers create, modify or cancel offers ("offer entry") from their own facilities. This may be accomplished using the issuer's own computers and special offer entry software in such well-known application formats as Visual Basic. The issuer offer entry software can also be made available in an HTML format so that it is accessible by the issuer's computer through the Internet or other electronic network. If the former, the system provides a way for the issuer to first create and proof the offers "off-line" and then, through a direct electronic hook-up, to synchronize the offers

from the issuer system with the service system. If the issuer system is Internet-based, the service system provides unique access to a special site where offers may be proofed online and then synchronized with the service system.

The issuer system converts offers into tables of transactional information and target instructions. The latter indicate which remote users are suitable for viewing the offer. A table is also created for each remote user, which contains such information provided during registration (e.g., address, gender, etc.), and is also continually updated with information about the remote user's activities on the service system (e.g., offers that have been downloaded or "clipped"). Each time the remote user accesses the service system, the database creates an updated table for the remote user that is then compared with the various target tables for the offers that are active at the time of access. The remote user may then view and otherwise access all the offers allowed to that user by the target tables.

Unlike previous systems, the database(s) of transactions or offers maintained by the service system is a compilation of such information provided by all of the participating issuer systems. In this manner, important cost efficiencies are

provided for the service system, since all of the issuer systems are effectively sharing in the cost of creating a huge collective database.

An important benefit of the present invention is the ability it imparts to both issuers and remote users to participate in a transaction (e.g., coupon delivery) on a "real time" and interactive basis. Thus, an issuer/advertiser can create or modify offers nearly instantaneously, in reaction to current events (e.g., competitive pressures, weather, regional overstock, etc.), or can limit offers by changing offer expiration dates or targeting the offer to limited zip codes or demographic profiles.

The present invention allows the remote user the ability to download an EC (e.g., coupons, reservation information, etc.) and to either attach it to another file or to print out a certificate as a reminder or coupon good for redemption at an appropriate outlet (e.g., store, restaurant, travel agency, ticket office, etc.). Each download is a transaction affixed with a unique serial number. A record of that number is then maintained in the remote user's table. If the issuer has permitted only one download (i.e., coupon) per household, the

process of downloading will update the remote user's table so that the offer can no longer be viewed or accessed on the service system.

The ECs may be printed using a printer associated with a remote user's personal computer. In a preferred embodiment, before the print-out can be made, the remote user must obtain a special program from the service system. This program resides on the remote user's computer operating system like other software applications (e.g., Microsoft Word, Lotus 1-2-3). This program becomes the repository for the downloaded indicia for the EC. Using pre-installed templates, a graphic image is then assembled which incorporates the indicia (including the unique serial code for the transaction). The indicia are encrypted so as to be illegible to any other program. Besides presenting the remote user with the list of downloaded ECs, the program also limits the remote user printer, so that it makes only one "print" of each certificate. If the remote user is permitted more than one certificate by the issuer, then the remote user must download another certificate.

The printer program provides benefits to both the issuer and remote user. It assures a quality print-out. The issuer

has no need to display the actual graphic image of the certificate on the remote user's computer screen (i.e., the first time the user sees the actual coupon is when it emerges from the printer). The issuer can then prevent the remote user from altering the offer on the user's computer screen with cut-and-paste computer graphics programs. The program prints the unique serial code on the certificate so that it can be tracked back to the specific remote user who had downloaded it. The program can also personalize the certificate by printing out the remote user's name.

Parallel processing and load balancing may also be provided to improve capacity and response time. The service system's ability to process a larger number of shopper requests concurrently can be accomplished by loosely coupling several computers to provide the visual interface screens to the shopper. A single computer selects one computer from a pool of computers to conduct the shopper's entire session of transactions with the service system. This computer, designated as the "rotor", can use a variety of selection techniques, including the simple technique of "round robin", to determine which pool computer to use to handle the shopper's session.

The point of Internet referral to the service system may also be used to target remote users. As a result, remote users who go first to an issuer's own Internet site may have their table marked when they next go to the service system, so that whenever they return to the service system, they view "exclusive offers" that other remote users will not see. This may be a way to reward frequent customers or special segments of customers.

The issuer system of the present invention can also customize what is printed on the coupon to include information that is customized to the remote user's profile table (e.g., the address of the issuer's outlets nearest to the remote user's zip code, such as a designated airport of embarkation to qualify for a special airfare discount).

The service system of the present invention can also increase the impact of offers by automatically generating prompts that alert the remote user through the electronic network via electronic mail or "E-mail". These alerts may be enabled by the remote user through the creation of a shopping list requesting alerts for certain categories of offers or specific issuers. Alerts may also be generated by the issuer system during offer creation.

During offer creation, the issuer system may also designate a specific series of unique numbers that will be attached to each EC download and appear on the print-out. These numbers can then be matched against the issuer's own centralized database when the certificate is presented for redemption. The issuer database can both check the validity of the number and then close the file for that number to preempt unauthorized copying. Thus, the system provides a higher degree of security for certificates that bear greater liability for issuers than most coupons (e.g., gift certificates or tickets). Distributing these more valuable certificates through the Internet can yield significant savings in the cost of printing, handling and postage.

An outline of preferred Internal Process Logic for the Service System of the present invention is described below.

Experience has shown that a relational database employing the SQL database language can meet the demands of the service system described above. The following algorithms have been found to facilitate the necessary targeting functions.

The database contains tables whose rows represent an instance of the following types of objects:

Shopper -- one row for each registered shopper

Offer -- one row for each promotional offer created by the issuer system

Target -- one row for each target specification created by the issuer system. This record specifies what type of attribute specifications the target must match (e.g., geography, demographics, or shopping preferences).

Target Demographics -- one row for each target that specifies targeting by selective demographics

Target Geography -- One or more rows for each target which specifies targeting by a specific geographical region. Each target which does this would have one row in this table for each unique geographical code specified by the target (e.g., area code and zip code for US targets; other types of targets are possible - e.g. dominant market area, region, state, province, county, etc.).

Target Preferences -- One or more rows for each target which specifies targeting by a shopping preference. Each target that does this would have one row in this table for each unique product category code specified by the target. These category codes can be used to target shoppers that have either clipped

EC's of a particular category of merchandise or service, or have indicated via a personal interest list ("shopping list") that they would like to receive promotions of a specific category.

Offer Target -- Typically, each offer is linked to a specific target using a single row in this table. The implementation, however, allows a single offer to be shown to various sets of shoppers by associating it with more than one target.

Coupon -- A row is created in this table for each EC that is transmitted to a shopper.

Records in the offer and target tables and the related target tables are created by transferring similar records from a private database in the issuer system into the database of the service system.

Creating a promotional offer in the service system requires that a target specification first be created in the service system database. Once a target is created, one or more promotional offers can reference that target specification as their offers.

Creating a target is accomplished by creating a record in the target table, along with one or more rows in the TargetDemographics, TargetGeography, and/or TargetCategories

tables. A built-in target called "All Shoppers" is created when the service system is initialized, which allows a promotion to be targeted at all shoppers in the database.

Offers and targets in the service system database can be created, modified, or removed at any time by actions of the issuer system. At any instant in time, shoppers using the service system will see the offers that are currently targeted at them, based on their personal attributes and clipping histories matching the specification of an offer's associated target.

The service system performs the following actions on behalf of the shoppers that it serves:

(1) Shoppers can register with the service system by filling out a form that contains their demographic and geographic information. When the registration form is received, a record of the shopper's attributes is made in the Shopper table. The shopper is given a shopper identification number by which he or she can return to use the service system at any later point in time.

(2) Shoppers can indicate by filling out a form on the service system that they have an interest in specific categories

of merchandise or services. This information is stored in a ShoppingList table, indexed by the shopper's identification number.

(3) When a shopper completes registration, or when they return to use the service system at a later date, they begin a "usage session" with the service system. If they are returning at a later date, they must identify themselves by presenting their shopper identification number to the service system. The service system then performs a search on the database tables using the SQL language, to determine what types of promotional offers are targeted to them. The results of this query are used by the service system to determine what types of visual control buttons each unique shopper should see. Visual control buttons that request lists of promotional offers of a type not targeted to the shopper will not be seen by the shopper, thus reducing shopper frustration at encountering buttons which yield no targeted offers. Also, certain specially highlighted offers are also selectively shown to the shopper, depending on whether those offers are targeted at the shopper's attributes (demographical, geographical, or categorical).

(4) The shopper's identity and session state information are kept in a per-session file, and are maintained by the service system as the shopper moves from page to page of the visual interface of the service system.

(5) As the shopper uses various visual controls to query the service system to display various types of offers, the following steps are performed to locate promotions to display to the shopper:

(A) The Target table is searched to determine what targets apply to the shopper.

(B) The OfferTarget table is searched to determine what offers apply to these targets.

(C) The Offer table is searched to locate offers applying to these targets which are not expired, and are in an "enabled" state.

(D) The Coupon table is searched next to ensure that the shopper has not already clipped the maximum number of EC's that the limitation of the offer permits.

The offers that meet all of these filtering criteria are then displayed to the shopper in a list. Each offer in the list

is shown with a visual control marked "clip" that enables the shopper to request the transmission of an EC for that offer to be transmitted to their computer for eventual printing as a coupon or other type of promotion or paper certificate.

Once the EC is transmitted, a record of that transmission is made in the Coupon table. The visual interface screen of the service system is then redrawn if the action of clipping the EC has made the shopper no longer eligible to receive additional EC's for that particular promotional offer, based on a per-shopper quantity limitation of the offer.

Alternative embodiments of the present invention may also be provided to handle special situations. For example, multiple shopper households can be handled as follows. To create a service which is better geared to the way that many households shop for goods and services, the system described above may be augmented by adding a table called "Household" to the database. When a shopper registers, the shopper is asked to supply information on both the residents of the household, and on each potential user of the service system within the household. The shoppers within a household are connected to the per-household information via database table relations. One shopper within the

household is designated as the household's primary shopper. The target and offer lookup mechanisms have been augmented to show the primary shopper any promotional offer that would be targeted to any member of the household.

"Look-aside caching" may also be provided to improve response time. With "look-aside caching", the service system may maintain additional tables that remember which targets apply to a particular shopper, or which coupons are and/or are not eligible for further clipping by that shopper. These additional tables allow the service system to make faster decisions about what a shopper is permitted to see and/or to clip.

Further aspects of the preferred embodiment of the present invention will now be described, with regard to a data processing system and method for use in dispensing and using ECs such as coupons over online systems. FIGURE 1 is an overview of this preferred embodiment, showing how the information and activities flow from creation of the EC to its selection and printing by the consumer, and its ultimate redemption. The process starts with a coupon issuer 1 who creates the coupon instructions (which will typically include the transaction data) and downloads them to a service data base 2 which receives the

instructions and assigns the identification data and issue restrictions. The service data base 2 can then display the active coupon files to the consumer, and make the designated amount available for downloading to the consumer's personal computer (PC) 3 or other input device. The consumer's PC 3 may download no more ECs than the number specified in the instructions of the coupon issuer 1.

Anytime before a coupon file's expiration date, the consumer may redeem it. Two redemption methods are shown in FIGURE 1. First, the electronic coupon can be printed with a printer attached to the consumer PC 3 or other input device. Since files relating to the electronic coupon remain in the storage device of the consumer's PC even after the consumer signs off with the service data base 2, the consumer can quickly disconnect from the online system, and print the coupon later, at his/her leisure. Printed on the coupon 6 would be the expiration date, a unique serial number (distinguishing that coupon from all others) and a barcode with the personal identification number (PIN) of the consumer. This identification data is preferably assigned by the service data base 2; the PIN number can be pre-assigned to individual

consumers when they register for the system. That printed coupon can then be submitted during check-out from a participating retail outlet and the stated credit would be deducted from the consumer's bill.

In the second method of redeeming a coupon shown in FIGURE 1, consumer PC 2 transmits the selected coupon file 5 to a data base 7 designated by the issuer, where it is stored with the same information as the printed coupon. The check-out system at the retail outlet 8 would then automatically activate the discount if the consumer presented a store credit card or a third-party credit card and purchased the designated product. Preferably, the electronic transfer of the coupon from the consumer PC to data base 7 can only be done on-line. (This permits the service data base 2 to accurately track the coupon's printing or presentation activity, as discussed below.)

While each EC may include both transaction data and identification data, the ECs of the present invention need only be provided with a single unique number (e.g., a barcode) while still providing all of the advantages described here.

Information can also be passed back up through the system, first to the service data base 2 and then on to the coupon

issuer 1. Thus, information about the coupon files, the specific transaction, consumer profiles or other demographic information, for example ("consumer data") can be downloaded by the consumer PC 3 and the coupon files can be sent to the consumer's printer 4 or to an issuer data base 7. Redeemed printed coupons 6 may also have their barcodes scanned by the service to identify, for research purposes, the consumers who used the coupons. For increased security, at check-out the barcode could be compared to ensure that the consumer identity corresponds with the barcode. Such information could also be transmitted from a coupon file 5 that is redeemed automatically.

FIGURE 2 depicts an exemplary software routine which enables the coupon issuer to download new coupon instructions, change old instructions, or upload information on coupon use. The routine begins 9 with dialing up the coupon service 10. To access the system, the issuer first enters a login password 11 (at which time the use of a pre-assigned registration number can be required). A main menu 12 is then displayed. Among the choices is creating new coupon instructions, which starts with a download of coupon templates 13 along with commands to set the number of coupons to be issued (both in total and to each

individual consumer) and commands to set expiration dates 14. Commands can also be issued to limit coupon distribution by area or by a consumer's household profile 15. These coupon instructions are added to previously issued coupons. The issuer can review these electronic coupons 16 and then modify instructions as to (e.g.) numbers issued 17 or expiration dates 18. Previously issued coupons may also be deleted from the system should the issuer decide to do so. (They may be automatically deleted from the system following expiration.) These changes are used to update the coupon instructions 19 resident in the service data base.

Issuers can also access the system for usage history 20 to determine the remaining number of previously issued coupons. Further, the issuer can upload reports 21 based on the number of coupons selected 22, printed 23, and redeemed 24. Another function of the software is to analyze use based on the shopping habits and demographic characteristics of the user. This consumer data can be contained in the household profile, submitted by the consumer to register for the system and periodically updated with additional questions and usage history. An issuer can display information about those who have

selected the issuers' coupons, breaking down use by such factors as region and demographics 25. In addition, the issuer can upload user reports 26 based on selection 27, print commands 28, and redemption 29.

The service data base, as shown in FIGURE 3, is the bridge between the coupon issuer 1 and the consumer 3, and permits the flow of both incoming and outgoing information. First, over an online network 33, the service receives the coupon instructions 19 sent by the coupon issuer 1. The service software takes the instructions and assigns the requisite serial numbers 34 and issue restrictions. These new or changed coupons are then sent to update 35 the active service coupons 36 already in disk storage for that issuer. These active service coupons are part of the outgoing information sent to the consumer over the online network 37. Consumer usage information goes back the other way through the network 38. The service system takes usage information 39 on selection and updates the number of active services coupons remaining. Also incoming from the consumer is household profile information 41. The service takes this information and updates user reports 42 which are sent back

through the network 44 to the issuer, completing the information circuit.

FIGURE 4 displays the software routine for the consumer. It starts 45 with a display of the main menu 46. The consumer may display the coupons that have already been downloaded and are resident on the consumer's PC 55. There are two methods by which the consumer could activate the coupons 48. The first would be to send the coupon file 49 to the consumer's printer. Along the way, it is barcoded with the consumer's PIN 50, which is accessed from the household profile data base 64. The consumer's printer 4 then prints out the coupon 6. Upon activation 48, a coupon could also be transmitted as a computer file 51, back through the network 52, to a data base chosen by the issuer. When coupons are activated 48, the consumer's resident software removes the coupon file that has been printed 54, updating the data base of downloaded electronic coupons 55 and the resident coupon display 47. The system also automatically removes expired coupon files that have yet to be activated 56. Another function of the resident software is displaying 62 and updating 63 the household profile 64 with

information entered by the consumer in response to questions submitted by the service.

To access a new selection of coupons, the consumer can dial up the service data base 58, enter the PIN number 59, and view a display of all active service coupons 60. These coupons can then be selected and downloaded 61 to the consumer's PC. While online, the consumer's software automatically sends back to the service data base information on the consumer's selection and printing history 57, as well as information on those downloaded coupon files that have expired 56. It also sends back updated information on the consumer's household profile 65.

A second embodiment of the present invention is directed to a data processing system and method for use in automating reservations over online systems for restaurants, hotels, or other service establishments. FIGURE 5 is an overview showing how the information and activities flow from the initial assignment of the reservation by the restaurant, to its selection by the consumer and the ultimate printing of a confirmation slip by the consumer's printer.

The automated reservation process starts with the host computer of the restaurant 66 which sets the number, time, and

type of reservations available, and downloads those instructions to the reservation service 67, which receives the instructions and assigns the requisite confirmation numbers and issue restrictions. The reservation service 67 can then display the service's reservations to the consumer, and make them available for access through the consumer's personal computer (PC) 68 or other input device. Once the consumer chooses the restaurant, time and type of reservation (i.e. for two, for four, etc.), the data processing system immediately notifies the restaurant with a description of the reservation, the name and telephone number of the consumer and the confirmation number. This information can be sent through the online computer network and also preferably by a designated fax machine (which may be more convenient for the restaurant's front-office staff than a computer). The consumer can then use a printer 69 attached to the consumer PC 68, or another input device, to print a confirmation slip 70. The confirmation slip can have a description of the reservation, the name and phone number of the consumer and the confirmation number. This slip would be presented to reception personnel upon the consumer's arrival at the restaurant and corroborated with the information that had

previously been sent to the restaurant through the system and fax machine.

Feeding back up through the system, first to the service data base 67, and then on to the restaurant 66, is information about the reservations made by the consumer PC 68 and the profile the consumer has submitted as part of the registration process for the service ("consumer data"). This profile is continually updated by the consumer, in response to additional questions, and is also continually updated by the system, in tracking the reservations the consumer has made.

FIGURE 6 depicts a software routine for the restaurant to set aside reservations for the system, change old reservations, and upload information on reservation use. The routine begins 71 with dialing up the reservation service 72. To access the system, the restaurant first enters a login password 73. A main menu 74 is then displayed. Among the choices is setting new reservations 75. The type of reservation and number of reservations is determined by setting available tables 76 (e.g., the number of tables available for seating two 78, four 77, and six 79). Instructions also include setting the day and time for the reservations 80. These reservation instructions can be

added to previously issued, initial reservation instructions in disk storage 81.

Still referring to FIGURE 6, the software can also be used to change previously issued reservations. The restaurant can review these electronic reservation "coupons" 82 and then modify instructions on (e.g.) the numbers of tables available 83. In this operation previously issued reservations could be deleted from the system at the restaurant's option. The updated reservation instructions 81 are then sent to the service data base. The system can also be accessed by restaurants for usage history 85 to view the names and phone numbers of those who have made reservations 86, and to determine the number of remaining reservations for a given hour 87. The restaurant can also upload information 88 on those who have used the service to book reservations at a particular location. A user profile could be displayed 89 and a list of users could be displayed 93, or the restaurant could print user reports 90, and create a hard copy of the user profile 91 or user list 92.

The reservation service, as shown in FIGURE 7, is again the bridge between the restaurant 66 and the consumer 68, and handles both incoming and outgoing information. First, over an

online network 94, the service receives the reservation instructions 95 sent by the restaurant 66. The service software takes the instructions and assigns the requisite confirmation numbers to each reservation 96. These new or changed reservations are then sent to update 97 the active service reservations 98 already in disk storage for the restaurant. These active service reservations are part of the outgoing information sent to the consumer 68 over the online network 99.

Still referring to FIGURE 7, consumer usage information also moves from the consumer's PC back to the restaurant through the network 100. The service system takes the reservation made by the consumer 102 and updates the number of active service reservations remaining 103. This information is also used to update the restaurant 104 through a transmission to the restaurant fax machine 105 and through the computer network 106. Also incoming from the consumer is user profile information 101 which is sent back to the restaurant through the computer network 106.

FIGURE 8 displays the software routine for the consumer. It starts 107 with a display of the main menu 108. The consumer can dial up the service data base 109, enter the PIN number 110,

and view a display of all active service reservations 111. A reservation can then be selected and downloaded 112 to the consumer's PC, where it is sent to the printer 113. Along the way, the name and phone number of the consumer is taken from the user profile information storage 117 and added 114 to print instructions for the confirmation slip 116. A printer attached to the consumer PC can be used to print 115 the confirmation slip 116.

While online, the consumer's software sends back to the service information on the consumer's reservation 119 to update the remaining service reservations. The reservation also updates the consumer's user profile 117. The updated user profile information is also automatically sent back to the service while the consumer is online 120. The consumer can display the user profile 121 and update the profile 122 with answers to questions prompted to the consumer both during and after the registration process.

It can be appreciated that the present invention can be designed for use with various online software, including American Online®, Prodigy® and Microsoft®.

It will also be appreciated by those skilled in the art that various changes and modifications can be made to the illustrated embodiments without departing from the spirit of the present invention. For example, while the preferred embodiments describe particular types of ECs (coupons and reservation slips), various other types of ECs can be used by systems designed according to the present invention, including certificates used as proof of a gift, award or payment, and virtually any other types of certificates or vouchers. As another example, while the service data base 2 will typically assign identification data to the EC, this data could be transmitted and assigned together with the transaction data by the coupon issuer 1, or even by a third remote site. Also, rather than utilizing separate issuer and service computers, they could be consolidated into a single computer for particular applications. Further, use could be made of multiple issuer computers, multiple service computers, or combinations of the same, given a particular application. Still further, while the preferred embodiments have described users with "remote computer terminals" that consist of personal computers, users might access the marketing network of the present invention through

various other accessing media, such as phone lines, televisions, or individual access stations dedicated for the use and dispensing of various certificates (much like cash machines are used today). These other accessing media would include appropriate software and hardware permitting interactive capabilities with remote computers, similar to that described in the preferred embodiments utilizing the personal computers. These and other modifications and changes within the spirit and scope of the present invention are intended to be covered by the appended claims.

A computer program listing for implementation of the present invention is set forth is the accompanying Appendix A. The seven modules or volumes contained in this source code listing represent the functionality of a commercial implementation of the present invention, except for certain encryption routines for the prevention of tampering with the computer program. The features of such encryption routines are separate from the focus of the present invention and are known by those of ordinary skill in the art.

We claim:

1. A method for issuing and processing electronic certificates having both transaction data and identification data, comprising the steps of:

(a) establishing electrical communication between a service system and a plurality of issuer systems;

(b) establishing electrical communication between the service system and a plurality of remote user stations;

(c) transmitting to the service system from the plurality of issuer systems instructions for issuing the electronic certificates;

(d) the service system receiving remote user profile data from the plurality of remote user stations and developing correlation data which categorizes the remote user profile data;

(e) selectively transmitting to the plurality of issuer systems from the service system the correlation data;

(f) permitting the plurality of issuer systems to revise the electronic certificates on an interactive and nearly instantaneous basis; and

(g) selectively transmitting to the plurality of remote user stations specified electronic certificates based upon the correlation data developed by the service system.

2. The method of Claim 1, wherein the number or type of electronic certificates to be issued can be limited by the plurality of issuer systems.

3. The method of Claim 1, wherein the issuer system converts the electronic certificates into tables of transactional information and target instructions, and further comprising the step of using the target instructions to determine which remote users are suitable for viewing a particular electronic certificate. offer.

4. The method of Claim 3, further comprising the step of creating a table for each remote user which contains remote user profile data and which is continually updated with information concerning the use by the remote user of the electronic certificates.

5. The method of Claim 1, wherein the service system maintains one or more databases of the electronic certificates and a history of their use, and wherein these one or more service system databases comprise a compilation of such information as provided by the participating issuer systems.

6. The method of Claim 1, wherein the number or type of electronic certificates accessible to each remote user can be selectively limited by the issuer systems based upon the correlation data.

7. The method of Claim 1, wherein at least some of the remote user stations are connected to a printer, and further comprising the step of printing the electronic certificates by the remote user in a manner that is conditioned by the service system.

8. The method of Claim 1, wherein each electronic certificate includes at least an expiration date, a unique certificate serial number, and a personal identification number capable of reproduction in bar-code form.

9. The method of Claim 1, further comprising the step of using electronic mail to alert remote users to the availability of specific types of electronic certificates.

10. A method for issuing and processing electronic certificates, comprising the steps of:

(a) establishing electrical communication between a service system and a plurality of issuer systems;

(b) establishing electrical communication between the service system and a plurality of remote user stations;

(c) transmitting to the service system from the plurality of issuer systems instructions for issuing a predetermined type and number of the electronic certificates;

(d) the service system receiving remote user profile data, including information sufficient to specifically identify the remote user, from the plurality of remote user stations and developing correlation data which categorizes the remote user profile data;

(e) selectively transmitting to the plurality of issuer systems from the service system the correlation data

without also transmitting the specific remote user identification information; and

(f) selectively transmitting to the plurality of remote user stations specified electronic certificates based upon the correlation data developed by the service system.

11. The method of Claim 10, the service system and the remote user stations are in electronic communication via the Internet.

12. The method of Claim 10, wherein the electronic certificates can be revised by either the service system or by the plurality of issuers systems on an interactive and nearly instantaneous basis.

13. The method of Claim 10, wherein the issuance of the electronic certificates to the plurality of remote user stations is conditioned upon the entry of remote user profile data by the plurality of remote users to the service system.

14. A method for issuing and processing electronic certificates, comprising the steps of:

(a) establishing electrical communication between a service system and a plurality of issuer systems;

(b) establishing electrical communication between the service system and a plurality of remote user stations;

(c) transmitting to the service system from the plurality of issuer systems instructions for issuing a predetermined type and number of the electronic certificates;

(d) the service system receiving remote user profile data, including information sufficient to specifically identify the remote user, from the plurality of remote user stations and developing correlation data which categorizes the remote user profile data;

(e) selectively transmitting to the plurality of issuer systems from the service system the correlation data without also transmitting the specific remote user identification information;

(f) selectively transmitting to the plurality of remote user stations specified electronic certificates based upon the correlation data developed by the service system; and

(g) wherein the issuance of the electronic certificates to the plurality of remote user stations is conditioned upon the entry of remote user profile data by the plurality of remote users to the service system.

15. A method for issuing and processing electronic certificates containing reservation data and having both transaction data and identification data, comprising the steps of:

(a) establishing electrical communication between a service system and a plurality of issuer systems, each issuer system including an issuing computer having an initial set of reservation instructions;

(b) establishing electrical communication between the service system and a plurality of remote user stations;

(c) transmitting to the service system from the plurality of issuer systems instructions for issuing number of the electronic certificates;

(d) the service system receiving remote user profile data containing reservation data, including information sufficient to specifically identify the remote user, from the

plurality of remote user stations and developing correlation data which categorizes and revises the initial set of reservation instructions;

(e) selectively transmitting to the plurality of issuer systems from the service system the correlation data without also transmitting the specific remote user identification information; and

(f) selectively transmitting to the plurality of remote user stations specified electronic certificates based upon the correlation data developed by the service system.

16. The method of Claim 15, wherein the reservation data is contained within the service computer as an electronic reservation coupon, and further comprising the step of printing the reservation coupon.

FIG. 1

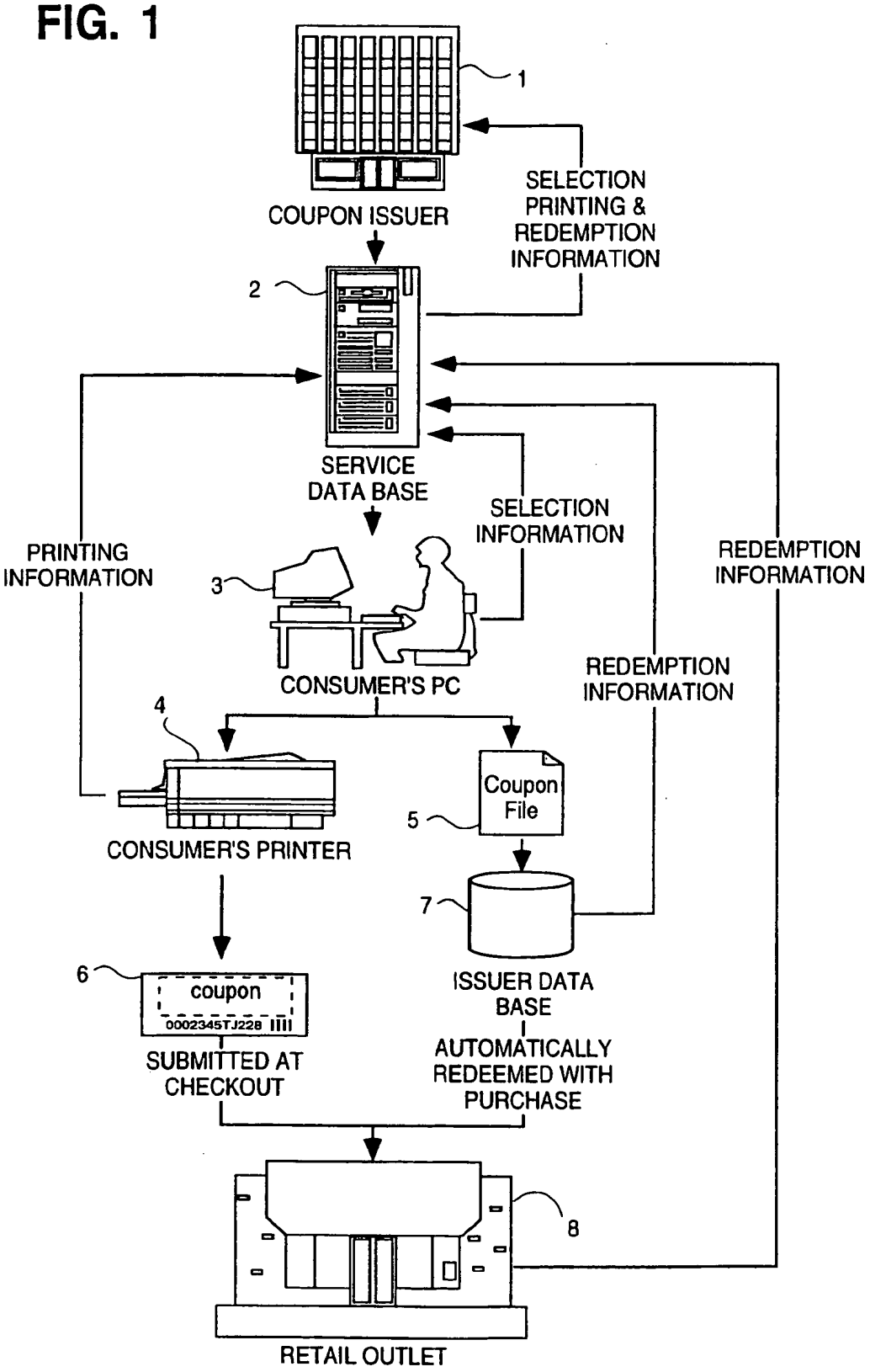

1
COUPON ISSUER
SELECTION PRINTING & REDEMPTION INFORMATION
2
SERVICE DATA BASE
SELECTION INFORMATION
PRINTING INFORMATION
REDEMPTION INFORMATION
3
CONSUMER'S PC
REDEMPTION INFORMATION
4
CONSUMER'S PRINTER
Coupon File
5
7
ISSUER DATA BASE
6
coupon
0002345TJ228
SUBMITTED AT CHECKOUT
AUTOMATICALLY REDEEMED WITH PURCHASE
8
RETAIL OUTLET

FIG. 2

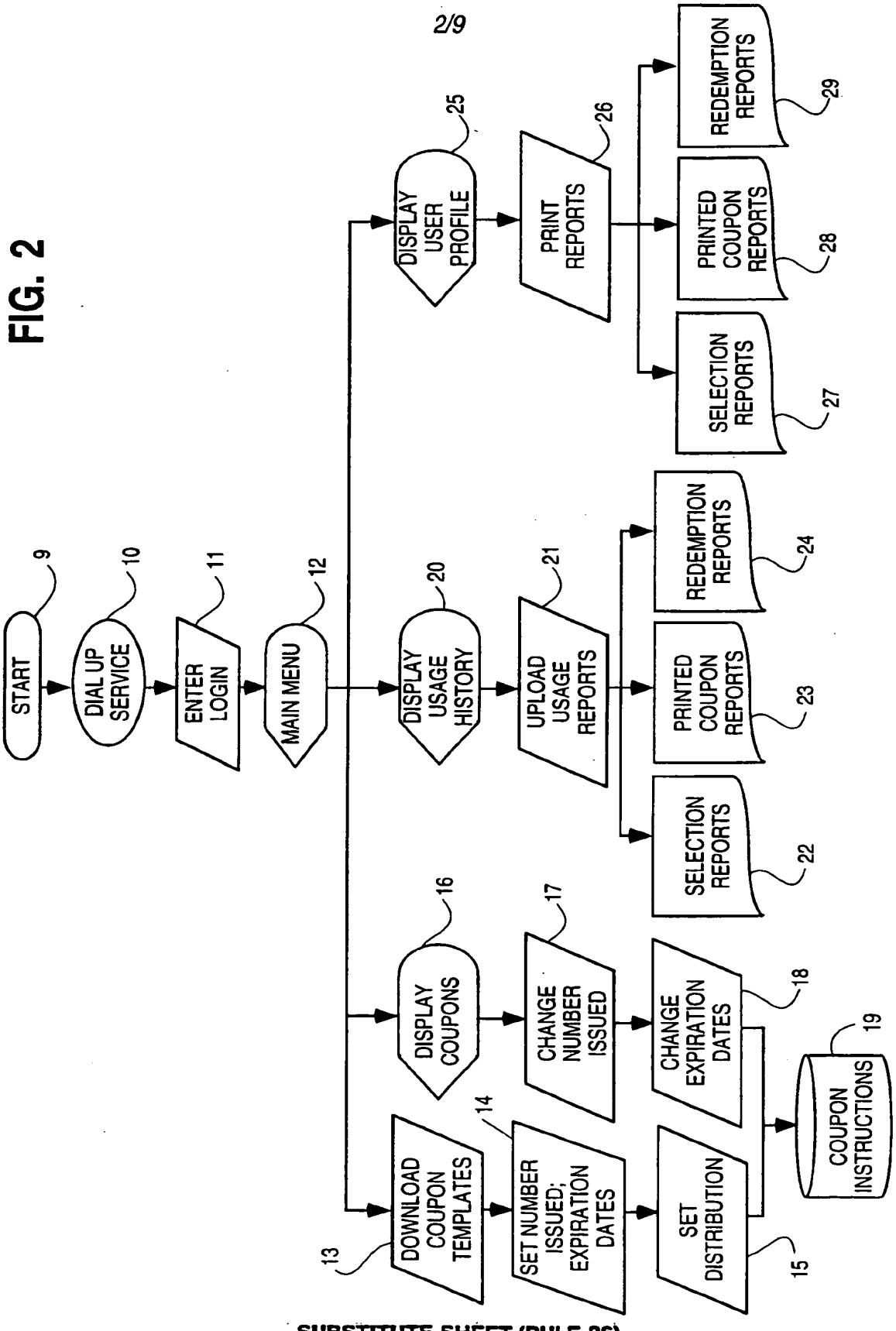
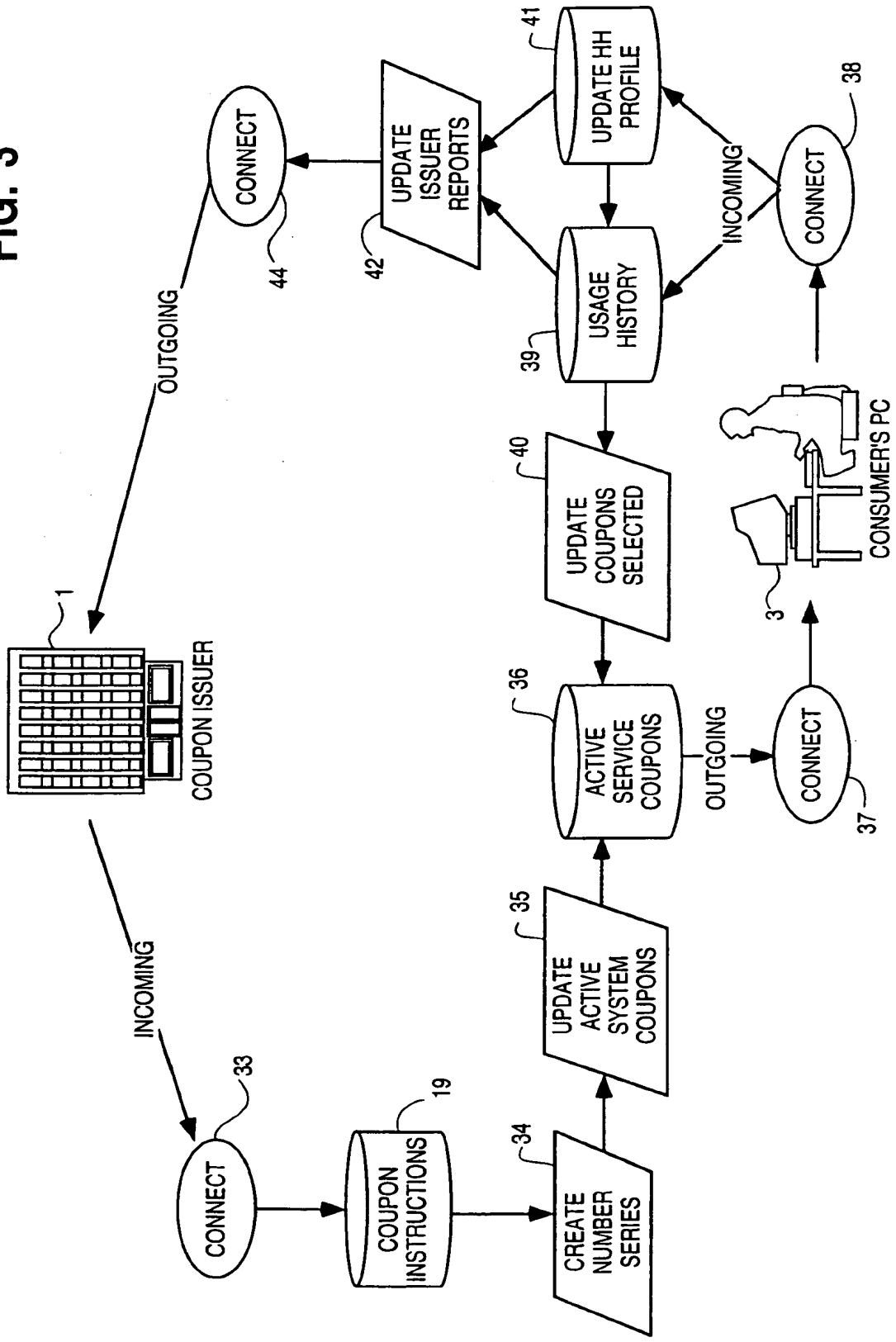

START
9
DIAL UP SERVICE
10
ENTER LOGIN
11
MAIN MENU
12
DISPLAY USER PROFILE
25
PRINT REPORTS
26
REDEMPTION REPORTS
29
PRINTED COUPON REPORTS
28
SELECTION REPORTS
27
DISPLAY USAGE HISTORY
20
UPLOAD USAGE REPORTS
21
REDEMPTION REPORTS
24
PRINTED COUPON REPORTS
23
SELECTION REPORTS
22
DISPLAY COUPONS
16
CHANGE NUMBER ISSUED
17
CHANGE EXPIRATION DATES
18
COUPON INSTRUCTIONS
19
DOWNLOAD COUPON TEMPLATES
13
SET NUMBER ISSUED; EXPIRATION DATES
14
SET DISTRIBUTION
15

FIG. 3


1
COUPON ISSUER
OUTGOING
INCOMING
CONNECT
44
UPDATE ISSUER REPORTS
42
41
UPDATE HH PROFILE
USAGE HISTORY
39
INCOMING
CONNECT
38
CONSUMER'S PC
3
40
UPDATE COUPONS SELECTED
36
ACTIVE SERVICE COUPONS
OUTGOING
CONNECT
37
35
UPDATE ACTIVE SYSTEM COUPONS
34
CREATE NUMBER SERIES
19
COUPON INSTRUCTIONS
33
CONNECT

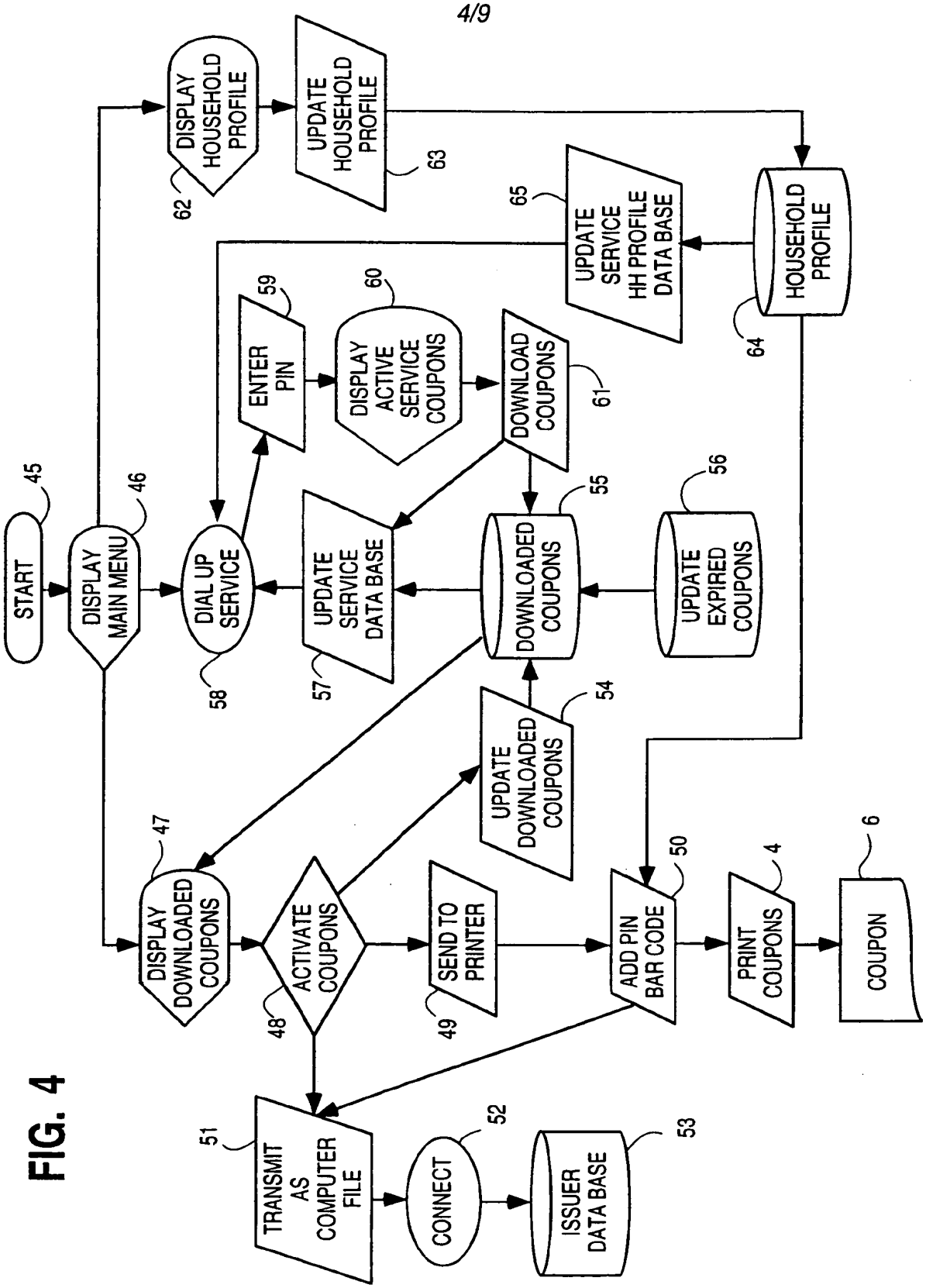
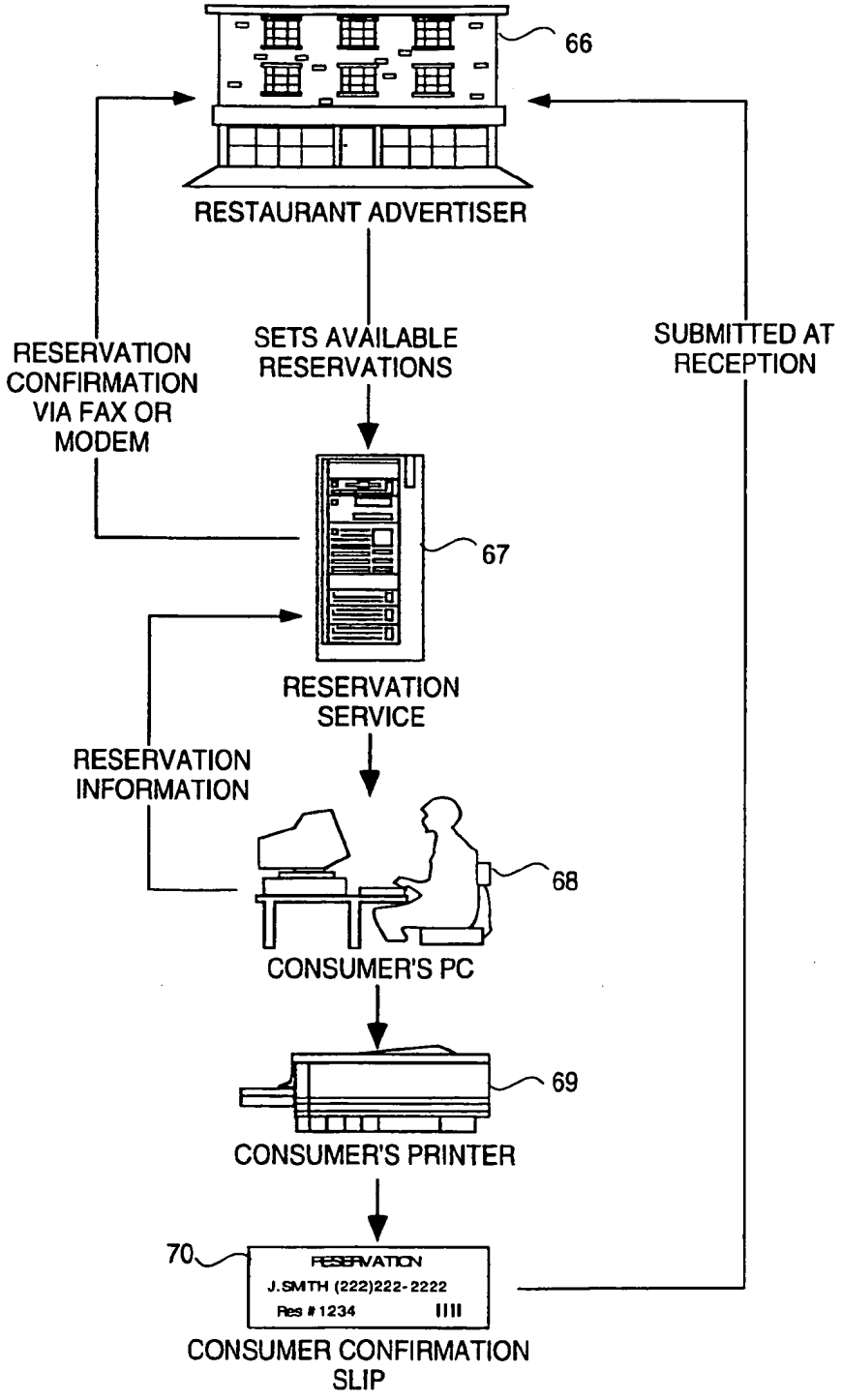

START
45
DISPLAY MAIN MENU
46
DISPLAY HOUSEHOLD PROFILE
62
UPDATE HOUSEHOLD PROFILE
63
HOUSEHOLD PROFILE
64
UPDATE SERVICE HH PROFILE DATA BASE
65
DIAL UP SERVICE
58
ENTER PIN
59
DISPLAY ACTIVE SERVICE COUPONS
60
DOWNLOAD COUPONS
61
UPDATE SERVICE DATA BASE
57
DOWNLOADED COUPONS
55
UPDATE EXPIRED COUPONS
56
UPDATE DOWNLOADED COUPONS
54
DISPLAY DOWNLOADED COUPONS
47
ACTIVATE COUPONS
48
SEND TO PRINTER
49
ADD PIN BAR CODE
50
PRINT COUPONS
4
COUPON
6
TRANSMIT AS COMPUTER FILE
51
CONNECT
52
ISSUER DATA BASE
53

FIG. 4

FIG. 5


66
RESTAURANT ADVERTISER
RESERVATION CONFIRMATION VIA FAX OR MODEM
SETS AVAILABLE RESERVATIONS
SUBMITTED AT RECEPTION
67
RESERVATION SERVICE
RESERVATION INFORMATION
68
CONSUMER'S PC
69
CONSUMER'S PRINTER
70
RESERVATION
J.SMITH (222)222-2222
Res #1234
CONSUMER CONFIRMATION SLIP

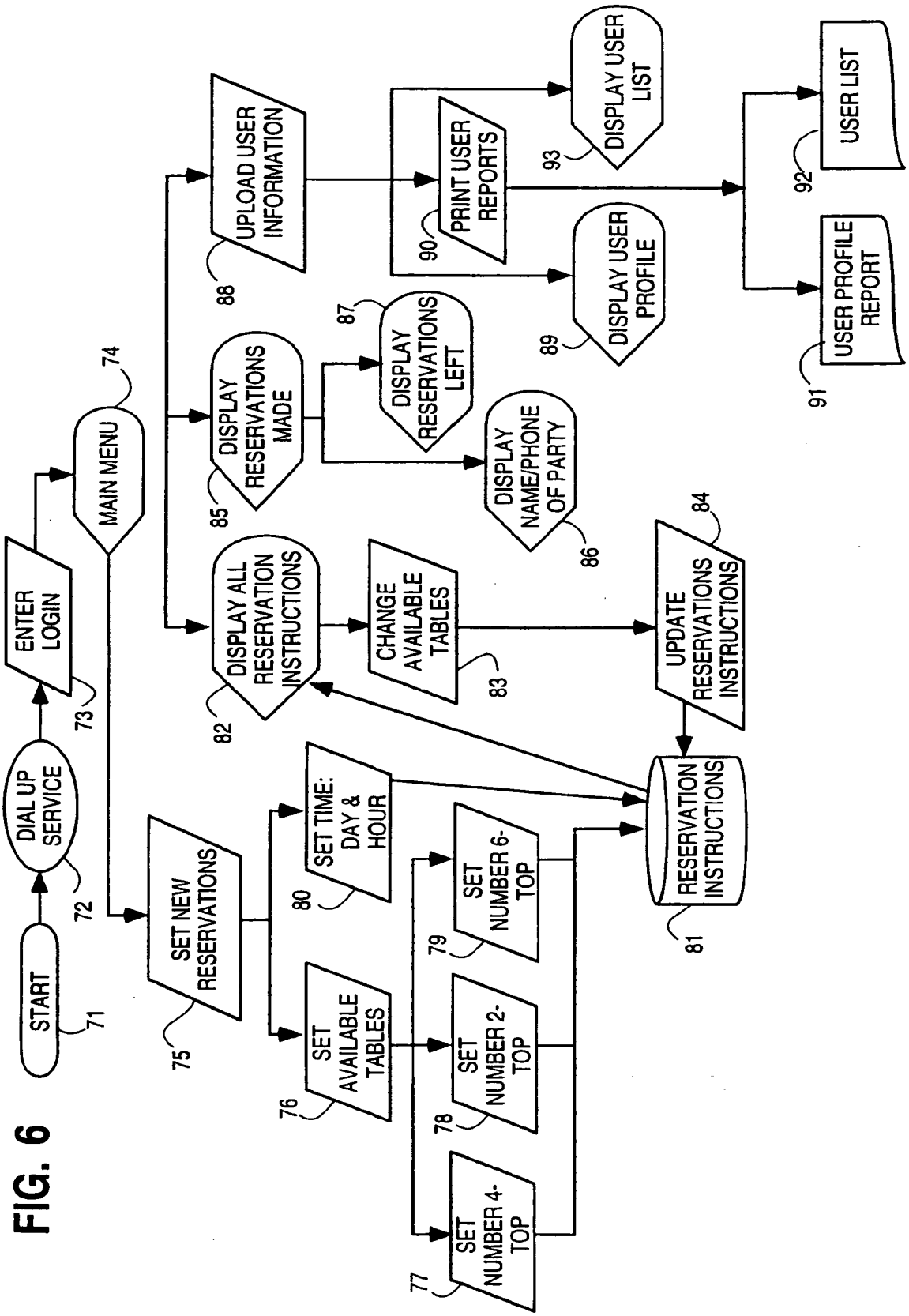

START
71
DIAL UP SERVICE
72
ENTER LOGIN
73
MAIN MENU
74
SET NEW RESERVATIONS
75
SET AVAILABLE TABLES
76
SET NUMBER 4-TOP
77
SET NUMBER 2-TOP
78
SET NUMBER 6-TOP
79
SET TIME: DAY & HOUR
80
RESERVATION INSTRUCTIONS
81
DISPLAY ALL RESERVATION INSTRUCTIONS
82
CHANGE AVAILABLE TABLES
83
UPDATE RESERVATIONS INSTRUCTIONS
84
DISPLAY RESERVATIONS MADE
85
DISPLAY NAME/PHONE OF PARTY
86
DISPLAY RESERVATIONS LEFT
87
UPLOAD USER INFORMATION
88
DISPLAY USER PROFILE
89
PRINT USER REPORTS
90
USER PROFILE REPORT
91
USER LIST
92
DISPLAY USER LIST
93

FIG. 6

FIG. 7

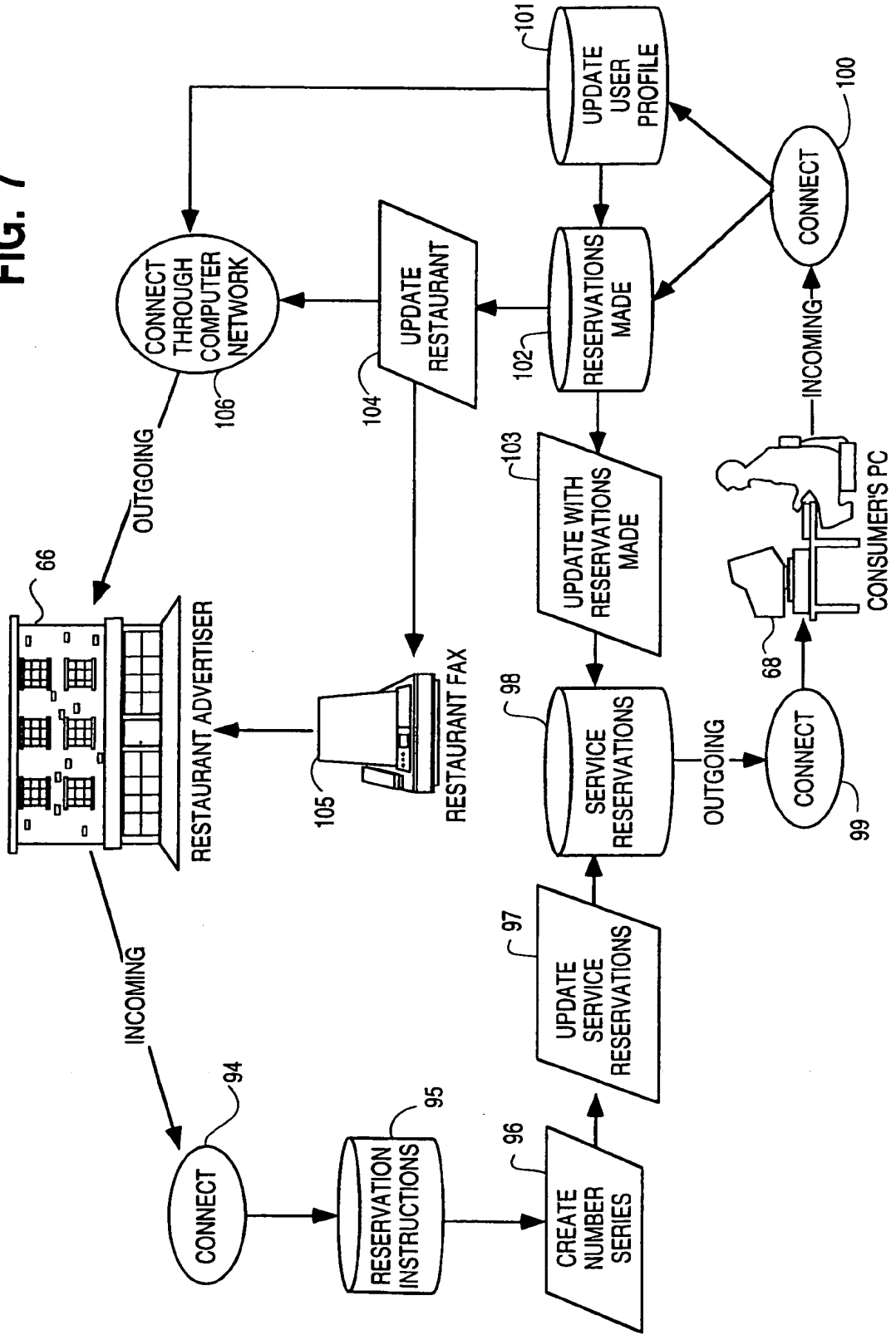

101
UPDATE USER PROFILE
100
CONNECT
CONNECT THROUGH COMPUTER NETWORK
106
UPDATE RESTAURANT
104
RESERVATIONS MADE
102
INCOMING
OUTGOING
66
RESTAURANT ADVERTISER
103
UPDATE WITH RESERVATIONS MADE
CONSUMER'S PC
68
105
RESTAURANT FAX
98
SERVICE RESERVATIONS
OUTGOING
CONNECT
99
INCOMING
97
UPDATE SERVICE RESERVATIONS
94
CONNECT
95
RESERVATION INSTRUCTIONS
96
CREATE NUMBER SERIES

FIG. 8

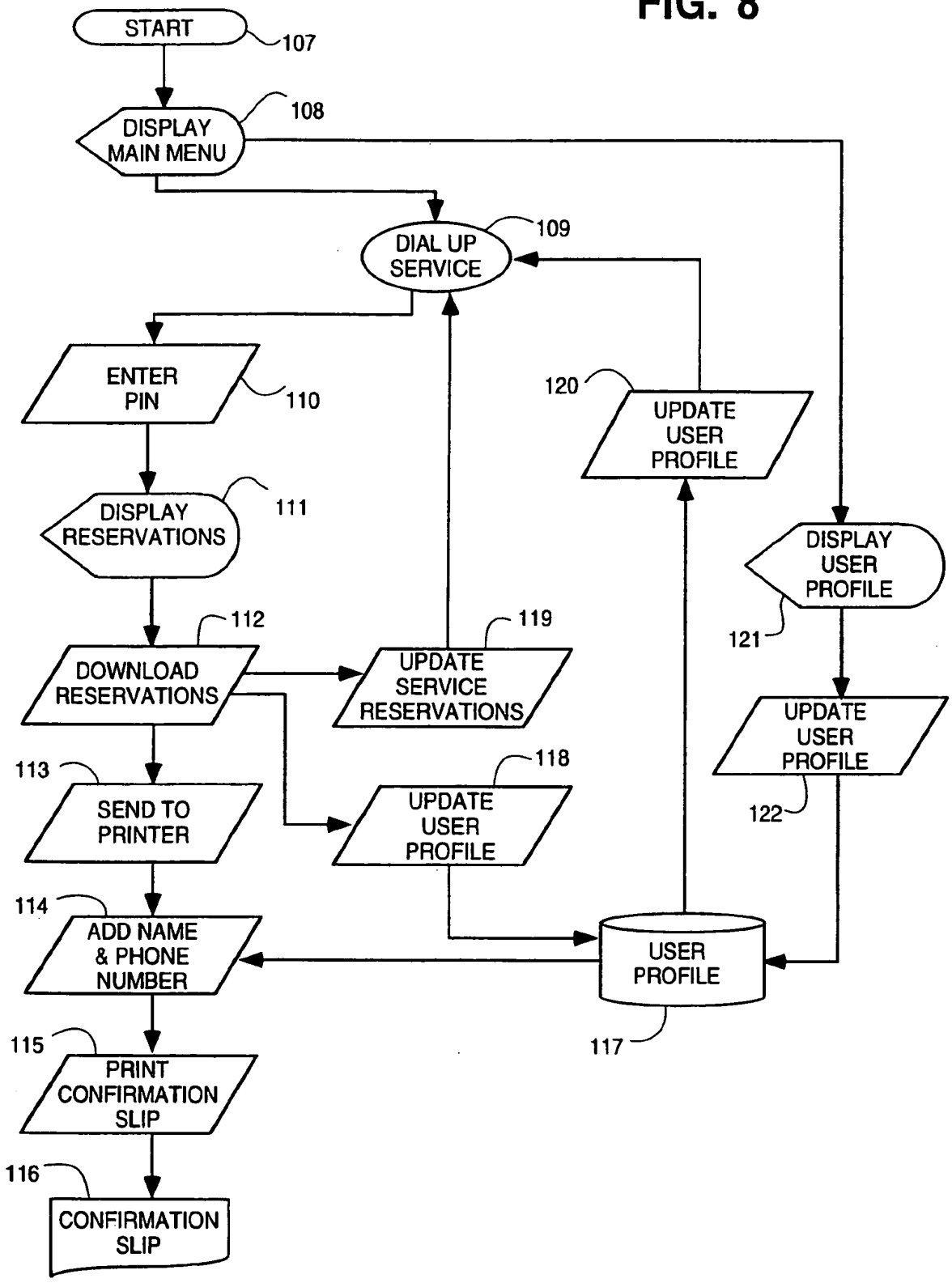
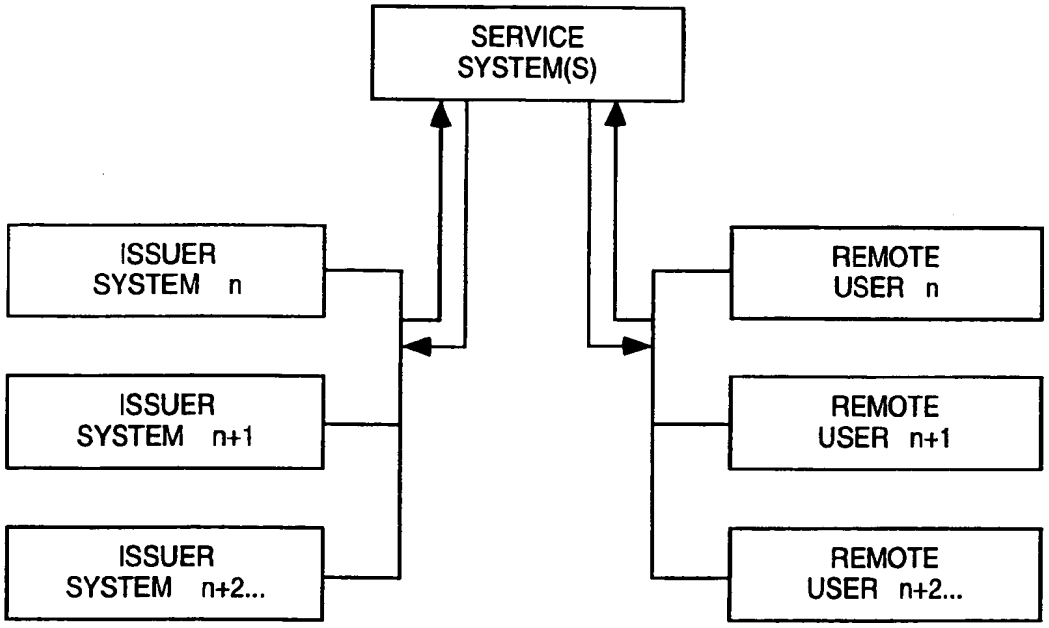

START
107
DISPLAY MAIN MENU
108
DIAL UP SERVICE
109
ENTER PIN
110
DISPLAY RESERVATIONS
111
DOWNLOAD RESERVATIONS
112
SEND TO PRINTER
113
ADD NAME & PHONE NUMBER
114
PRINT CONFIRMATION SLIP
115
CONFIRMATION SLIP
116
USER PROFILE
117
UPDATE USER PROFILE
118
UPDATE SERVICE RESERVATIONS
119
UPDATE USER PROFILE
120
DISPLAY USER PROFILE
121
UPDATE USER PROFILE
122

FIG. 9


SERVICE SYSTEM(S)
ISSUER SYSTEM n
ISSUER SYSTEM n+1
ISSUER SYSTEM n+2...
REMOTE USER n
REMOTE USER n+1
REMOTE USER n+2...